



Nature's jottings

Newsletter of the Natural History Society of Jamaica

July 2006

ACTIVITIES FOR JULY/AUGUST 2006

PRESENTATION OF 2 VIDEOS

DATE: SATURDAY JULY 15 AT 10.00AM

VENUE: BIOLOGY LECTURE THEATRE, UWI

By special request there will be a viewing of the NHSJ/IOJ video on Natural History and folklore.

In addition, as it's a long time since we saw one of Kai Meng Lui's videos he will give us the opportunity to enjoy his recently prepared one on the Blue Mountains.

W A L K

There will be a farewell walk in the mountains for Philip Allsworth Jones, who is leaving UWI to return to the UK shortly.

Date: Saturday, July 22

Meet at the SRC for vehicle pooling and departure at 8.00am for the start of the walk at the disused coffee factory at Silver Hill Gap, near Starlight Chalets.

Bring lunch, plenty of water, good walking shoes, sun protection, cameras, binoculars. There maybe a chance to bathe in the river.

FIELD TRIP TO HALF MOON CAY, PORTLAND BIGHT

Date: Saturday, August 12

This trip was suggested by Brandon Haye from CCAM, who will accompany the group. We shall have a wonderful opportunity to see several varieties of nesting birds and depending on weather conditions we may be able to visit other cays.

As you probably know over a period of time enthusiastic volunteers planted coconut trees on Half Moon Cay for both shade and the nuts. It will be interesting to see how the trees stood up to the storms of the last couple of years. Some of you may remember that Karl Aiken led an NHSJ field trip to nearby Little Goat Island some years ago and brought along coconuts, which we planted.

The cost per person has yet to be determined. From the proceeds a donation will be made to CCAM.

Those wishing to go on this trip should contact Trevor Yee at 942-2233 or 970-2574 or Jill Byles at 977-8007 by Wednesday, August 2. Provide contact information. There can be no late acceptances as boats, lifejackets etc. have to be arranged.

MORE RECENT ACTIVITIES

Your Jottings

NHSJ Field Trip to the Discovery Bay Marine Laboratory, and the Prospect Plantation Estate, April 22nd, 2006, by Cicely Tobisch.

A group of NHSJ members set out from the Scientific Research Council at about 8:00 am, and were joined by other members, including a group from Mandeville, for a total of approx. 20 members and friends. We were met by Mr. Peter Gayle of BDML, who gave us a history of the Marine Lab. He mentioned that it was started in the early 1960's, by Prof. Tom Goreau, and by the mid-1960's, the Kaiser Bauxite Company had showed an interest in the Lab, and funding was obtained from the Wolfson Foundation for its construction on the present site.

The Marine Lab is one of the premier Marine Labs in the region, but competes with newer ones in the Cayman and Turks and Caicos Islands. Peter estimated that it would take some J\$17M to refurbish the plant and equipment to a fairly pristine condition. The lab is a foreign exchange earner, and caters to students and visiting scientists from overseas, especially the USA. It is similar to a small hotel, and has dining, in addition to accommodation facilities. The most recent accommodation block was funded by CIDA. There was a submersible vessel operating from the Marine Lab, but which is now doing tourist dive duties in the Cayman Islands.

Mangroves and Reefs

The mangroves at BDML are unusual and unlike elsewhere, where they are found usually in the silt interface of sea and shore, here they are on Karst limestone. At DBML, there is a fore reef, and a back reef, where the coral shelf falls off sharply into the Cayman Trench, which at its deepest is some 7 – 8 miles deep. Just off to the right of the fore reef, the sea floor falls off to 80 ft., and to the Western side are the Rio Bueno reefs. The Pear Tree Bottom, where the new Pinero Group's Bahia Principe hotel is being built has slerosponges normally occurring in deep water, in close proximity to the shore. Here there are buttresses, which have created tunnels 90 – 100 ft. long, each inhabited by a population of fishes.

The DBML has maintained an association with some 20 other marine labs in the region, and this has afforded regional collaboration and the creation of e.g. regional data bases, and a pool of knowledge on regional marine science. Such regional considerations have included the black-spined sea urchin die off, coral bleaching, and the sea fan disease of the mid-90's., which produced holes or splits in the fans. Interestingly, the last mentioned disease is believed to have been caused by terrestrial pathogens, some coming from the Saharan dust carried across the Atlantic. In addition, there has been a collaborative study of red algae and sponges with the U. of Mississippi.

Fisheries Improvement Programme

One of the problems that Jamaican reefs are experiencing is overfishing. Fishes are natural herbivores and as a result of overfishing, nutrients run off from gullies, etc. can result in algal blooms. The sea urchins are also herbivores, the black ones occurring in the zone with corals, the white one living primarily in the sea grass.

DBML has a working relationship and fisheries improvement program with the local fishermen. There is a cooperative organized by the lab and from where fishermen can purchase their equipment. 1 in. mesh traps that have been used by the fishermen, were found to be destructive to the fish population and the lab operated a scheme where materials for two traps using 1 ½ in mesh were traded for each one with 1 in mesh brought in. This resulted in an effective substitution with the newer 1 ½ in. mesh traps and a

discernable improvement in the fish stocks of the Bay. At the same time, the local fishermen were also mobilized to discourage spear fishing at depths less than 20 ft. The success of the program resulted in fishermen from other areas wanting to be involved in a similar scheme. In response to a question, Mr. Gayle explained that Pelagics, such as King Fish tended to live in the upper levels of the deep sea and others such as Red Snapper in the lower levels.

Artificial Reef Balls

In an effort to reverse the destruction of our local reefs, trials using artificial reef balls cabled to the sea floor have been conducted. These have proved quite successful in creating intersites, habitats which allow fish to hide and breed. One of the result of overfishing and the covering of reefs with algae, is that these dead reefs do not create sediment, which result in the formation of beaches. In addition, dead reefs are very poor buffers in the event of hurricanes.

In general, the North Coast consists of a number of sandy beaches close to a rocky shore. The existing hotels are constructed on or near the beaches, and fortunately from an ecological standpoint are fairly well spaced from each other. There is however, a population pressure resulting from the hotel surroundings, with the corresponding pressure on water supplies, etc., and not only the marine environment is affected. If the number of hotels increase to the point where they become much closer to each other, their cumulative effect on the environment may be different from what is presently being experienced.

Boats.

The Food for the Poor Organisation has instituted a program of providing boats for fishermen, especially for off-shore fishing. Local fish supply accounts for only 1/3 of consumption, with supplies being sourced from Guyana and elsewhere. Pond-bred fishes such as Tilapias have now been bred and grown in sea water, under the supervision of the Marine Lab. One of the problems that have had to be dealt with are marine parasites which attack the fish, and a solution to the problem worked out, which involves the periodic washing of the fish in fresh water, before re-immersion back into sea water.

Decompression Chamber

Mr. Gayle then took the group on a tour of the Decompression Chamber operated by the Marine Lab and one of the few in the island. He spoke at length about the effect of the increased pressure on the human body and gave a brief composition of the air as a result of changes in pressure resulting from diving: At the surface, air is: approx. 21% O₂ and 79% N₂, or 0.21 Atm. O₂ and 0.79Atm.N₂, but at a depth of 60 ft., this is increased to 0.21 x 3 or 0.62 Atm O₂ and 0.79 x 3 or 2.4 Atm. N₂. At sea level, our bodies are subjected to atmospheric pressure, and the pressure is 1 bar. The increase of pressure has a considerable effect. At a depth of 60ft., when the air with a partial pressure of N₂ of 2.4 Atm is breathed in and comes in contact with the blood, noting that the volume of a gas is inversely proportional to pressure, a diver will breathe in air at the increased pressure, and in effect will extract more air from his breathing apparatus than at the surface. A supply of air that lasts for e.g. lasts for 60 min. at a depth of 30 ft. may last for only 30 min. at 90 ft., at the same rate of breathing. The density of the air at 90 ft. will be twice that at 30 ft. and the diver experiences increased difficulty in working against the increase drag of the denser air, and the muscles of his lungs also work harder, in breathing

At sufficiently increased pressures, the increased nitrogen in the blood stream is responsible for a form of narcosis, somewhat similar in sensation to that produced by alcoholic intoxication. The symptoms are characterized by feelings of elation, associated with a sense of detachment from reality, and a tingling numbness of the lips, gums, and limbs. The senses of sight, sound and smell may also be affected. Novices and persons who are more sensitive to the effects, may be affected by the narcosis at a depth of 90 ft, and which can be rapid, reaching a maximum effect, within a few minutes. Frequent divers, however, may develop some tolerance to the compressed air, adapting to the increased concentrations and are less affected.

If a diver makes a descent and the pressure of the air he breathes is increased to two atmospheres, the partial pressures of the nitrogen and oxygen will be twice as great at the surface, and twice as much of these gases will be dissolved in the blood. Some of the nitrogen passes into the fatty tissues, particularly of the brain and spinal cord, which contain a high proportion of lipid tissue. Divers carrying out heavy exercise under water will absorb more nitrogen than on the surface and those muscles being used will be the most

affected. The amount of nitrogen in his tissues will depend on the depth and duration of the dive, and the amount of exertion. As he surfaces, his air pressure is gradually decreased, but his body tissues will no longer be able to hold the extra nitrogen, which would have been absorbed in his blood, and expelled by the air exhaled by his lungs. If the partial pressure of nitrogen which had been maintained at a high level for some time and then suddenly reduced, the nitrogen will come out of solution quicker than it can be carried away by the blood and will form bubbles in the blood stream and tissues. These bubbles in the fatty tissues and synovial membranes around the joints, lead to a stretching of the nerve endings in these tissues and considerable pain, a condition known as the Bends or Decompression Sickness. One of the symptoms of persons suffering from this complaint is a severe pain in the limbs, causing the victim to double up in anguish, with the inability to straighten the affected joints. Bubbles liberated in the spinal chord are even more serious and may cause paralysis, while those liberated in the brain give rise to Cerebral Bends. In the most severe cases, large bubbles can be collected in the chambers of the heart, resulting in death. These symptoms may occur immediately on ascending or in some cases, up to six hours after a dive.

Our tour ended with a delightful boat tour of Discovery Bay. A number of features of the Discovery Bay were explained, e.g. the several fresh water upwellings into the Bay from the Karst limestone, under the seabed. Some other feature pointed out were the "Blue Hole" section which had a depth of 40 ft., the centre of the Bay which was 180 ft., and the ship channel by the Kaiser Pier which was 40 ft. It was mentioned that the coral cover was about 30 -40% on the reef that runs across the Bay. On the east of the Bay were luxury homes, owned by hotel mogul, Butch Stewart, one of his ex wives, and several of the McConnell brothers, among others. We saw the old Folly Fishing Beach and the Puerto Seco Beach, and ended the tour in a shallow, sandy area beside the reefs, where several members went for a swim.

The group is most thankful to Mr. Peter Gayle for the time and care he took to conduct a most informative and enjoyable visit.

Tour of the Prospect Estate

After lunch, our group met Wendy Lee at the Prospect Plantation. With the payment of a specially arranged entrance fee of \$500, we became complimentary members of the Northern Jamaica Conservation Association for a year. The group then started a meandering tour of the estate on foot, going uphill, downhill and sometimes on a level, first toward the chapel, where a wedding was in progress. We eventually went past the Great House and to a loop which headed back towards our starting point, passing at one point a beautiful gorge of the White River, some distance below, then an Ostrich farm, where about six of these large birds came right up to the edge of their cages as if to meet the group.

The Prospect Estate has a large number of trees planted by visiting dignitaries, by Diplomats, Royalty, and Politicians. Unfortunately, the naming of the trees was obviously not done by a trained Botanist and at times were hilarious. The local Red Birch, *Bursera simaruba* (Burseraceae), for example was given a strange local name of Birch Gum, and a misspelt Temperate Birch name of *Beteela sp.*, which should have been *Betula sp.* There were several *Bombax ellipticum* (Bombacaceae), in full bloom with their characteristic powder puff-like pink flowers on trees with no leaves., but their name tags bore the strange name of Band Box. A large Braziletto in flower, *Peltophorum linnaei* (Caesalpinaceae), was also wrongly labeled as *Caesalpinia sp.*

Other trees seen on the estate were many Pimento, *Pimenta dioica* (Myrtaceae), two large Silk Cotton trees, *Ceiba pentandra* (Bombacaceae), the Seaside Laurel, *Phyllanthus angustifolius* (Euphorbiaceae), the Jamaican Dogwood, *Piscipula piscidia* (Papilionaceae), the Breadnut *Brosimum alicastrum* (Moraceae), Yoke Wood *Catalpa longissima* (Bignoniaceae), Poinciana *Samanea saman* (Caesalpinaceae), African Tulip Tree *Spathodea campanulata* (Bignoniaceae), also seen at the Marine Lab, Bitter Damson *Simarouba glauca* (Simaroubaceae), and some Mango *Mangifera indica*, (Anacardiaceae), Sugar Cane *Saccharum officinarum* (Graminae), and *Anthurium andreaeanum* (Araceae).

PET BOTTLE RECYCLING!

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pass along Shortwood Road is drop your bag of PET bottles over the wall of no. 2. It's as simple as that. For more information call 931 9744 or email sweetcraft@mail.infochan.com

MEMBERS

Our sincere wishes and hope that Hermann Tobisch will shortly be back leading us into the bush with as much vigor as before his stay in hospital.

Prepared by Jill Byles 8/4/06